



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,049	07/31/2003	Linda Benhase	TUC920020093US1	3583
46917 7590 07/13/2007 KONRAD RAYNES & VICTOR, LLP. ATTN: IBM37 315 SOUTH BEVERLY DRIVE, SUITE 210 BEVERLY HILLS, CA 90212			EXAMINER BRUCKART, BENJAMIN R	
			ART UNIT 2155	PAPER NUMBER
			MAIL DATE 07/13/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/633,049	Applicant(s) BENHASE ET AL.	
	Examiner Benjamin R. Bruckart	Art Unit 2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Status of Claims

Claims 1-30 are pending in this Office Action.

Claims 1-3, 5, 9-10, 13-18, 22-27 are amended.

The 35 U.S.C. 101 rejection is withdrawn in light of applicants amendments.

Specification

The changes to the specification are accepted.

Drawings

The changes to the drawings are accepted.

Response to Arguments

Applicant's arguments filed in the amendment filed 6/20/07, have been fully considered but are moot in view of new grounds of rejection. The reasons are set forth below.

Applicant's invention as claimed:

Claim Objections

Claim 10 repeats the word "at" in the preamble. This is a minor informality and needs to be removed. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-11, 13-19, 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable by U.S. Patent Publication No. 20020049845 by Sreenivasan et al in view of U.S. Patent Publication 2003/0126202 by Watt.

Regarding claim 1, the Sreenivasan reference teaches a system comprising:

at least two server processes, including a first server process and a second server process, adapted to perform tasks (Sreenivasan: page 3, para 35);

a server system comprising two clusters (Sreenivasan: page 2, para 26-27):

wherein a cluster includes:

a first agent process at the cluster that is registered with the first server process to notify the first server process that the first agent process exists to perform tasks for the first server process to complete the tasks issued (Sreenivasan: page 4, para 75-76; S1 = first server process; processes are registered with nodes and servers; page 9, para 168);

a second agent process at the cluster that is registered with the second server process to notify the second server process that the second agent process exists to perform tasks for the second server process to complete the tasks issued, wherein the second server process is different from the first server process with which the first agent process is registered

(Sreenivasan: page 4, para 75-76; S2 = second server process; processes are registered with nodes and servers; page 9, para 168); and

wherein when one of the first agent process and the second agent process fails, the other of the first agent process and the second agent process continues processing in the cluster (Sreenivasan: page 9, para 152-154; page 10, para 171-174).

The Sreenivasan reference fails to teach more than one cluster.

However, the Watt reference teaches when one of the two clusters fails, the other one of the two clusters continues processing in the server system (Watt: page 9, para 118-121) in order to recover from failures and resume providing services (Watt: page 1, para 7, 13).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the system of redundancy within a cluster to include cluster redundancy in order to recover from failures and resume providing services (Watt: page 1, para 7, 13).

Regarding claim 2, the Sreenivasan reference teaches the system of claim 1.

The Sreenivasan reference fails to teach more than one cluster.

However, the Watt reference teaches multiple clusters with multiple servers running multiple applications (Watt: page 2, para 19; Fig. 4a-4b) in order to allow backups for a number of applications or data centers (Watt: page 2, para 19).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the system of redundancy within a cluster to place one application with one server and another application with another server in order to recover from failures and resume providing services (Watt: page 1, para 7, 13).

Regarding claim 3, the Sreenivasan reference teaches the system of claim 1.

The Sreenivasan reference fails to teach more than one cluster.

However, the Watt reference teaches, a server process executes at a first cluster and a second process executes at a second cluster (Watt: page 2, para 19; Fig. 4a-4b) in order to allow backups for a number of applications or data centers (Watt: page 2, para 19).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the system of redundancy within a cluster to place one application with one server and

another application with another server in order to recover from failures and resume providing services (Watt: page 1, para 7, 13).

Regarding claim 4, the system of claim 1, where at least one of the first server process and second server process execute at a host system (Sreenivasan: page 4, para 75-76).

Regarding claim 5, the system of claim 1, further comprising:

persistent data at each of the two clusters storing configuration and state information for one or more storage devices accessed by the cluster, wherein the configuration includes how many storage devices are in the cluster, and wherein the state information includes an indication of whether each storage device is available or unavailable (Sreenivasan: page 5, para 79; 85-91).

Regarding claim 6, the system of claim 1, further comprising:

means for, when the first server process and first agent process fail while executing a task, executing the task with the second server process and second agent process (Sreenivasan: page 4, para 73).

Regarding claim 7, the system of claim 1, further comprising:

means for, when the first server process and first agent process fail while executing a first task, continuing to execute a second task with the second server process and second agent process (Sreenivasan: page 3, para 57).

Regarding claim 8, the system of claim 1, further comprising:

means for detecting a first server and a second server (Sreenivasan: page 5, para 79-85);

means for registering the first agent process with the first server process at the first server (Sreenivasan: page 5, para 79-85);

means for registering the second agent process with the second server process at the second server (Sreenivasan: page 5, para 79-85);

means for, when a task is to be executed by the first server process, executing the task with the first agent process (Sreenivasan: page 1, para 15); and

means for, when the task is to be executed by the second server process, executing the task with the second agent process (Sreenivasan: page 1, para 15).

Regarding claim 9, the system of claim 1, wherein the first agent process and the second agent process are launched at one of the two clusters and further comprising:

means for collecting configuration information, including how many storage devices are in the cluster, and state information, including whether each storage device is available or unavailable (Sreenivasan: page 5, para 79; 85-91);

means for storing the configuration and state information as persistent data at the cluster (Sreenivasan: page 7, para 117-122);

under control of the first agent process,

(i) means for retrieving stored configuration and state information (Sreenivasan: page 5, para 85-88; CMD); and

(ii) means for transmitting the retrieved configuration and state information to the first server process (Sreenivasan: page 9, para 151-153); and

under control of the second agent process,

(i) means for retrieving stored configuration and state information (Sreenivasan: page 5, para 85-88; CMD); and

(ii) means for transmitting the retrieved configuration and state information to the second server process (Sreenivasan: page 9, para 151-154); and

Regarding claim 10, the system of claim 1, wherein the first agent process and the second agent process are launched at one of the two clusters, and further comprising:

means for receiving at least one of changed configuration information and changed state information for the cluster, wherein the configuration includes how many storage devices are in the cluster, and wherein the state information includes an indication of whether each storage device is available or unavailable (Sreenivasan: page 5, para 85-89);

means for storing the at least one of changed configuration information and changed state information as persistent data at the cluster (Sreenivasan: page 7, para 117-122);

means for broadcasting the at least one of changed configuration information and changed state information for the cluster (Sreenivasan: pages 6-7, para 112); and

under control of the first agent process,

(i) means for retrieving the stored at least one of changed configuration information and state information (Sreenivasan: page 9, para 151-154); and

(ii) means for transmitting the retrieved at least one of changed configuration information and state information to the first server process (Sreenivasan: page 9, para 151-154); and

under control of the second agent process,

(i) means for retrieving the stored at least one of changed configuration information and state information (Sreenivasan: page 9, para 151-154); and

(ii) means for transmitting the retrieved at least one of changed configuration information and state information to the second server process (Sreenivasan: page 9, para 151-154).

Regarding claim 11, the system of claim 1, wherein the first agent process is launched if a first server is configured and wherein the second agent process is launched if a second server is configured (Sreenivasan: page 4, para 73, 76).

Claims 12, 20, 21 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable by U.S. Patent Publication No. 20020049845 by Sreenivasan et al in view of U.S. Patent Publication 2003/0126202 by Watt in further view of U.S. Patent No. 6,847,984 by Midgley et al in futher view of U.S. Patent Publication 20010014908 by Lo et al.

Regarding claim 12, the modified Sreenivasan reference teaches the system of claim 1.

The modified Sreenivasan reference fails to teach a driver process.

However the Midgley reference teaches

means for receiving a request to execute the task from the first server process (Midgley: col. 15, lines 46-55);

means for invoking a driver process for executing the task (Midgley: col. 15, lines 46-55; col. 16, lines 19-38);

Art Unit: 2155

means for receiving task completion state from the driver process (Midgley: col. 16, lines 19-38); and

means for forwarding the task completion status to the first server process (Midgley: col. 16, lines 19-38).

The Midgley reference uses the device driver to perform file system and device level instructions (Midgley: col. 16, lines 19-37).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the system of servers to include agents that communicate with device processes to perform file system and device level instructions (Midgley: col. 16, lines 19-37).

The modified Sreenivasan reference does not teach storing the identity of the agent.

However, the Lo reference teaches means for storing identification for the first agent process in persistent data (Lo: page 5, para 51) so that the active processes can be monitored, cleanly exited, and resources released (Lo: page 5, para 51).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the system of Sreenivasan to include recording agent IDs so that the active processes can be monitored, cleanly exited, and resources released (Lo: page 5, para 51).

Claims 13-19 and 22-28 are rejected as being representative claims of limitations 1-11. Therefore the claims are rejected as being substantially similar.

Claims 20-21 and 29-30 are rejected as being representative claims of limitation 12. Therefore the claims are rejected as being substantially similar.

REMARKS

The examiner thanks applicant for a great interview in which much progress was made. The claims remain directed to redundancy and failover in a computer network environment. While the claims claim a first and second agent process with different server processes, they are directed to performing the same limitations and are mere obvious variations from prior art redundancy in a cluster system.

The examiner suggests detailing the second and first process apart from each other.

PRIOR ART

U.S. Patent Publication No. 2005/0262319 by Satoyama et al teaches cluster storage system with redundancy between clusters (page 1, para 3-5; page 6, para 102).

U.S. Patent No. 5,996,086 by Delaney et al teaches device and file system driver process communication with server storage systems (col. 2, lines 17-46).

U.S. Patent Publication No. 2002/0194268 by Lai teaches distributed objects in a cluster system (see Fig. 7; page 1, para 9-11; page 2, para 24-26).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin R Bruckart whose telephone number 571-272-3982.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and after final communications.

Art Unit: 2155

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the examiner whose telephone number is 571-272-3982.

Benjamin R Bruckart
Examiner
Art Unit 2155

BRB


SALEH NAJJAR
SUPERVISORY PATENT EXAMINER